Paediatric Endoscopy Global Rating Scale

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Paediatric Endoscopy Global Rating Scale: Development of a Quality Improvement Tool and results of a National Pilot

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Abstract

Introduction: The endoscopy Global Rating Scale (GRS) is a web based self-assessment quality improvement tool providing a framework for service improvement. Widespread use of the GRS in adult endoscopy services in the United Kingdom (UK), has led to a demonstrable improvement in quality. The adult GRS is not directly applicable to paediatric endoscopy services.

Objectives: To develop and pilot a paediatric endoscopy GRS (P-GRS) as a quality improvement tool.

Methods: Members of the British Society of Paediatric Gastroenterology, Hepatology and Nutrition (BSPGHAN) Endoscopy Working Group collaborated with the Joint Advisory Group on Gastrointestinal Endoscopy (JAG) to develop the P-GRS. After a period of consultation this was piloted nationally in 9 centres and data was collected prospectively at two census points, May and December 2016.

Results: The P-GRS mirrors the adult GRS by dividing care into four domains and includes 19 standards with several measures that underpin the standards. Eight services completed the online P-GRS return in May 2016 and six in December 2016. All pilot sites identified areas that needed improvement and post-pilot reflected on the key challenges and developments. Several positive developments were reported by the pilot sites.

Conclusions: The national pilot helped ensure that the P-GRS developed was relevant to paediatric endoscopy services. The pilot demonstrated that even in the first year of engaging with this quality improvement tool, services were starting to identify areas that needed improvement, share best practice documents, put in place quality improvement plans and support greater patient involvement in services.

Keywords: endoscopy, global rating scale, paediatric, quality improvement

What is known?

- Use of the endoscopy Global Rating Scale (GRS) in adult services in the United Kingdom has led to a demonstrable improvement in quality and embedding of standards through the process of accreditation led by the Joint Advisory Group on Gastrointestinal Endoscopy (JAG).
- The adult GRS is not directly applicable to paediatric endoscopy services.

What is new?

- A Paediatric endoscopy GRS (P-GRS) was developed and successfully piloted nationally as a quality improvement tool.
- Engaging with the P-GRS helped pilot sites to identify areas that needed improvement, share best practice documents, put in place quality improvement plans and support greater patient involvement in their services.

Introduction

An endoscopy global rating scale (GRS) was developed for adult endoscopy services in the United Kingdom (UK) in 2004 as a patient-centred quality improvement (QI) tool. The GRS is a web based self-assessment QI tool that provides a framework for service improvement and standards to support accreditation[1]. There has been widespread acceptance and use of the GRS in adult endoscopy services in the UK, leading to a demonstrable improvement in quality and embedding of standards through the process of accreditation led by the JAG (Joint Advisory Group on Gastrointestinal Endoscopy)[2]. The JAG represents all professional stakeholders involved in endoscopy services including physicians, surgeons, paediatricians, nurses, radiologists and general practitioners. In addition, the JAG oversees standards in endoscopy training and provides quality assurance for endoscopy services.

A Scottish study conducted focus groups with patients and concluded that the GRS did address quality issues that mattered to patients undergoing endoscopy and validated its use as a quality improvement tool[3]. Internationally, the GRS has also been shown to be applicable in the Dutch adult endoscopy services and reliably identified service gaps[4], it has also been modified for use in Canadian adult endoscopy services[5].

Over the last decade, the rates of diagnostic paediatric gastrointestinal endoscopy have greatly increased in the UK with a wide variation across the country[6]. Differences in patient needs and care delivery meant that much of the adult GRS is not directly applicable to paediatric endoscopy services and the need for a paediatric specific and relevant GRS has been recognised for some time.

In the absence of a paediatric GRS, paediatric endoscopy provider units are unable to assess or demonstrate whether the services they provide are patient-centred, safe, high quality and

appropriate. We report the development of a Paediatric GRS and the findings of the multi-centre pilot phase of implementation.

Methods

A P-GRS (Paediatric GRS) working group was formed in May 2015. Led by the British Society of Paediatric Gastroenterology, Hepatology and Nutrition (BSPGHAN) Endoscopy Working Group (EWG) Chair, this group included experienced paediatric endoscopists from 9 hospitals across the UK, senior paediatric endoscopy nurses and representatives from the JAG. The units represented a mix of stand-alone paediatric endoscopy units or those that operated as part of an integrated endoscopy service with the adult endoscopy service or those that operated independently of the adult services but as part of the same organisation. This was to ensure the tool developed could be applicable to all endoscopy diagnostic and therapeutic services treating children and young people under the age of 16 years, irrespective of their setting. Following face to face consensus meetings and multiple teleconferences between the P-GRS working group and the JAG, a P-GRS was produced using the adult GRS framework. Consultation and input was sought from endoscopy leads, the patient and parent partnership groups and BSPGHAN council. The JAG led a training day for all the representatives from the nine pilot sites in May 2016. The first pilot test assessment of the P-GRS was completed late May 2016 and the second assessment in December 2016. This allowed all pilot sites to reflect on the GRS measures to ensure they were relevant to paediatric endoscopy services and fit for purpose. There was a further face-to-face consensus meeting and teleconferences amongst the members of the P-GRS working group supported by the JAG that resulted in guidance notes for all the measures within the paediatric GRS to ensure clarity. The face-to-face consensus meeting also allowed the pilot sites to reflect on key developments and challenges. There was a final consultation period in July 2017

involving the entire BSPGHAN membership and the P-GRS went live in October 2017 for all paediatric endoscopy centres in the UK.

Ethical approval was not required as there was no patient identifiable data and this was a consensus based development of a quality improvement tool. Audits carried out by pilot units to demonstrate adherence to standards and quality measures were approved by the respective local governance committees.

Results

Structure and Overview of the P-GRS

The P-GRS(https://www.thejag.org.uk/Downloads/Accreditation%20-%20Global%20Rating%20Scale%20(GRS)/181121%20-%20document%20-%20Paediatric%20GRS%20standards.pdf) mirroring the adult GRS, takes a holistic approach dividing care into four domains each referring to a broad aspect of care, namely Clinical Quality, Quality of Patient Experience, Workforce and Training and includes a total of 19 standards (Table 1) which cover every aspect of service delivery[7].

Only those services offering endoscopy training to paediatric gastroenterology trainees are required to complete the training domain. The standards are qualitatively different and therefore no standard is more or less important than another.

Each standard has a number of measures that underpin it. For example, the standard "Safety" in the Domain of "Clinical Quality" includes measures such as a system for recording adverse events, routine use of a pre and post procedure checklist, adverse events reviewed every 3 months and actions in response to learning implemented within 3 months, patients with acute upper gastrointestinal bleeding undergo a risk assessment and receive endoscopy

appropriately, a process is in place for identifying and reviewing 30-day mortality and 8-day unplanned readmissions etc.

The measures in the P-GRS reflect paediatric guidelines and processes for e.g. measures reliant on compliance with adult gastroenterology guidelines were altered to reflect paediatric guidelines, emphasis on monitoring paediatric relevant outcomes such as ileal and caecal intubation rates instead of adenoma detection rates or polyp recovery, risk assessments of patients with acute upper gastrointestinal bleeding are reliant on an appropriate paediatric clinical assessment and not adult risk scoring systems, measures included in the standard "Respect and Dignity" are relevant to children including safeguarding training and related policies, parental involvement is highlighted in the measures within the standard "Patient involvement", use of age appropriate patient information etc. Adult relevant measures including gender separation, cancer waits, diagnosis and surveillance etc. have been excluded.

Guidance statements for the measures ensure these are unambiguous and help the services in answering whether they have achieved them or not. Each measure is assigned a level from D to A. The measure answers then generate a score for each standard for the service. A level "D" is basic and highlights there are areas of improvement, level "C" suggests a service is reactive to changes with basic adherence to requirements, level "B" suggests a service is proactive to changes with good adherence to requirements and level "A" is aspirational[3]. Currently adult services are required to score a level B in all standards to apply for and maintain accreditation.

A clinical, nursing and management lead are required to complete the P-GRS for their service and are asked to answer "Yes" or "No" to each measure via the website. To attain a specific

level (D to A), the service must achieve all the measures up to and including that level. If even one measure in a level is not achieved then the level below is scored.

The P-GRS is supported by a website which facilitates easy data entry and data review by the paediatric endoscopy units. It automatically creates action plans which support the units in identifying areas requiring improvement, allows benchmarking and is linked to the knowledge management system, an electronic library that provides access to guidance and policies and allows document sharing.

Post pilot phase, the P-GRS census will be performed once a year in the UK and the results will be reviewed and reported on nationally.

Results of the national pilot

The nine pilot services invited to participate in the pilot included the paediatric endoscopy services at Sheffield Children's NHS Foundation Trust, Birmingham Children's Hospital, Oxford University Hospitals NHS trust, University Hospitals of North Midlands NHS Trust, Nottingham University Hospitals NHS Trust, Barts Health NHS Trust, University Hospital Southampton NHS Foundation Trust, Alder Hey Children's NHS Foundation Trust and The Royal Hospital for Sick Children Edinburgh NHS Lothian. Endoscopy lists per week varied between 1.5 lists to 8 lists per week in these services, with some services providing a larger variety of therapeutic procedures.

Three of the nine pilot services are stand-alone Children's Hospitals whilst the remaining six services either operate independently of the adult services but are part of the same organisation or some aspects of their service are integrated with their adult endoscopy service.

Eight services completed the online return in May 2016. One service did not complete this due to low staffing levels. Six (of the initial eight) services completed the online return in December 2016 (Dec 16). The other two also cited low staffing levels. There were inadvertent vacant posts in these tertiary level services that led to the low staffing levels. It took the services an average of 2-3 hours to complete the first census return and 1-2 hours to complete the second census return.

Services that provided paediatric endoscopy training were required to complete the training domain. Results of the census return from the pilot sites at the two census points are detailed in Figure 1 (A to D).

Representatives from all pilot sites attended a face-to-face meeting with the JAG, post-pilot to reflect on key developments and challenges. A common challenge identified by all units was balancing the progress with achieving all standards with service delivery and the need for trust and managerial support. All pilot sites also noted that the initial input required into the P-GRS was considerable but was less time-consuming for the second census. A paediatric endoscopy service that operated as part of an integrated endoscopy service with the adult services or one that operated independently of the adult services but as part of the same organisation found that some standards were common and had already been achieved by their adult service.

The pilot sites worked on different areas in their services as these were either identified as "quick wins" or a priority. Overall, 41 levels improved across the standards in the six services that completed both census returns (33 Level D's improved to level C and above, one to maximum four services improved levels within each standard). And 10 levels in total, were lower across the standards in the second census return.

The developments in the pilot sites that occurred with engaging with the P-GRS are summarised under the following headings:

Endoscopy User Group and leadership team

Two of the stand-alone paediatric services established an Endoscopy User Group (EUG) to ensure a robust governance and organisational structure for supporting the endoscopy service, whilst another fed into an existing theatre service group. One stand-alone unit had previously established a EUG but now started discussing endoscopy related incidents in mortality and morbidity meetings. Other units that were linked to adult services either because they were in the same organisation or had integrated services joined the existing endoscopy user or theatre service/user group in their organisations to take forward the agenda. Engaging with the P-GRS ensured all units had an identified clinical, nursing and managerial lead for endoscopy.

Managerial support for endoscopy decontamination

One site ensured implementation of standard operating procedures whilst another commissioned an annual engineer report for decontamination.

Audit plans

One stand-alone service developed an annual endoscopy audit plan which audited against the BSPGHAN endoscopy quality and safety indicators and evidenced measures in the P-GRS. Two units completed a bowel preparation safety audit that changed their local bowel preparation guideline. One unit started regularly collating local data looking at 30 day mortality and 8 day re-admission data and reviewing Key Performance Indicators for the endoscopists in their team, but felt that feeding this information back could be a challenge. In addition, the administrative support required to regularly conduct audits was recognised as a challenge by all services involved.

Patient survey and pathway

All services became more aware of their local patient care practices and shared their patient information leaflets and pathways. All units had mechanisms in place to ensure appropriate patient safety adverse events reporting which would allow learning from such events. One unit developed a patient and carer endoscopy experience questionnaire which was delivered annually and two other pilot sites adopted this with good results. Another unit adapted a local adult patient feedback survey. Two units changed to CO2 insufflation from air for all their colonoscopies.

Staff engagement

Pilot sites where the endoscopy service was co-located with the adult service in the same trust reported increased engagement with their adult services. This allowed them to link in with the endoscopy processes and pathways that had already been established by their counterpart adult teams. Increasing engagement with surgical colleagues on delivery of endoscopy services was also reported at most sites.

IT development

Four units already had access to the endoscopy reporting software (ERS) as a tool to capture data for audit purposes, one was a stand-alone unit and three through their co-located adult services. An additional unit following engagement with the pilot P-GRS secured successful approval of a business case for ERS procurement from their trust management. Two further units were in the process of procuring an ERS.

Training

The pilot sites noted that an increasing number of endoscopy trainers had started to attend the Training the endoscopy Trainer courses[8] thus helping local training practice.

Discussion

When the GRS was first implemented in 2004, a majority of the adult units were achieving a level C or D in all standards[9]. However, rapid service improvements followed in the subsequent years with development of an accreditation process, resulting in majority of the units achieving the required level B across standards[9]. A professionally-led, peer-reviewed accreditation process encouraged uptake and supported teams in achieving the standards[9,10]. All adult endoscopy units in the UK currently complete the GRS online census twice a year and after a unit achieves level B across all items, it can apply for JAG accreditation. This occurs via a peer review visit which looks at the evidence provided by the service, includes interviews with staff and an inspection of the physical environment. Visits subsequently occur every 5 years and services are required provide evidence via the GRS online census annually to maintain accreditation.

Many units in the paediatric pilot achieved basic levels in several standards. It is important to highlight that this does not imply poor performance but is simply a starting point and helps to identify areas that need improvement and to prioritise these aspects. This mirrors the experience of the adult services in the UK when they first starting using the GRS[9,10] and the Canadian adult services when they first started using the modified GRS[5].

Some of the low scores in quality occurred because there had not been an established formal mechanism in place to regularly monitor endoscopy safety and quality indicators. These had only recently been produced by the members of the BSPGHAN Endoscopy WG. Once a formal audit system is established it is anticipated that these levels would improve. Other areas where improvements may have been needed included access to an electronic endoscopy reporting system or the unit was currently unable to measure, record and review their performance. Participating units reported being able to identify “quick wins” for rapid service

improvement and that the process promoted collaboration between units with sharing of good practice, documents and pathways. It is envisaged that the P-GRS will be supported over time with a web based knowledge management system linking solutions directly to challenges.

Overall, all pilot services reported a positive experience. A Dutch study reported that majority of the endoscopy personnel evaluating the GRS were positive about using the GRS and about a third were concerned about the time involved and cost efficiency[4]. The Dutch experience with the GRS also highlighted that when the structural and process indicators were addressed, patient satisfaction was expected to be higher[4].

The pilot P-GRS services supported by the JAG agreed to develop an action plan with up to three achievable plans with each cycle of assessment. Each subsequent evaluation would then result in a new action plan, with the aim of gradually achieving a level B or higher across all standards. In time, this will allow services to track their progress allowing continuous quality improvement as the units are regularly reviewing their practice and putting in place measures that help achieve the highest standards of quality and patient centred care and in time this will serve as a benchmarking tool. It is important to note that the P-GRS does not set specific outcomes itself but refers to the current guidelines and thus remains flexible with changing guidance and ensures good adherence to current guidance.

Experience within the adult services has demonstrated that although services were encouraged to generate a continuous quality improvement cycle, it was insufficient to achieve sustained results. It was the quality assurance via the professionally led peer-reviewed accreditation process linked to rewarding financial levers that achieved stepwise change in quality of endoscopy care in adult services[9,10]. As with any other transformational process, there remain concerns whether the momentum achieved with the P- GRS will be sustained and whether incentivising quality by linking it to National Specialty Standards[11] and a future

accreditation process into the commissioning or quality framework would be a possible lever to embed and sustain these improvements. Regular completion of the P-GRS census will also provide the opportunity to produce a national view of progress against the standards and provide benchmarking data to inform future accreditation of services.

Conclusions

The national pilot helped ensure that the P-GRS developed was relevant and appropriate to paediatric endoscopy services. The pilot also demonstrated that even in the first year of engaging with this quality improvement tool, services were starting to identify areas that needed improvement, share best practice documents, put in place quality improvement plans and support greater patient involvement in services.

Overall, this has been a very positive experience and clearly having taken a lead from adult colleagues' experiences with GRS it aims to improve quality of paediatric endoscopy service, patient safety and experience. This will help units attain optimal standards, staffing and support within a national accepted framework and will be, we hope, a powerful tool for paediatric gastroenterology services to evidence service development requirements to their Trust Boards and Commissioners.

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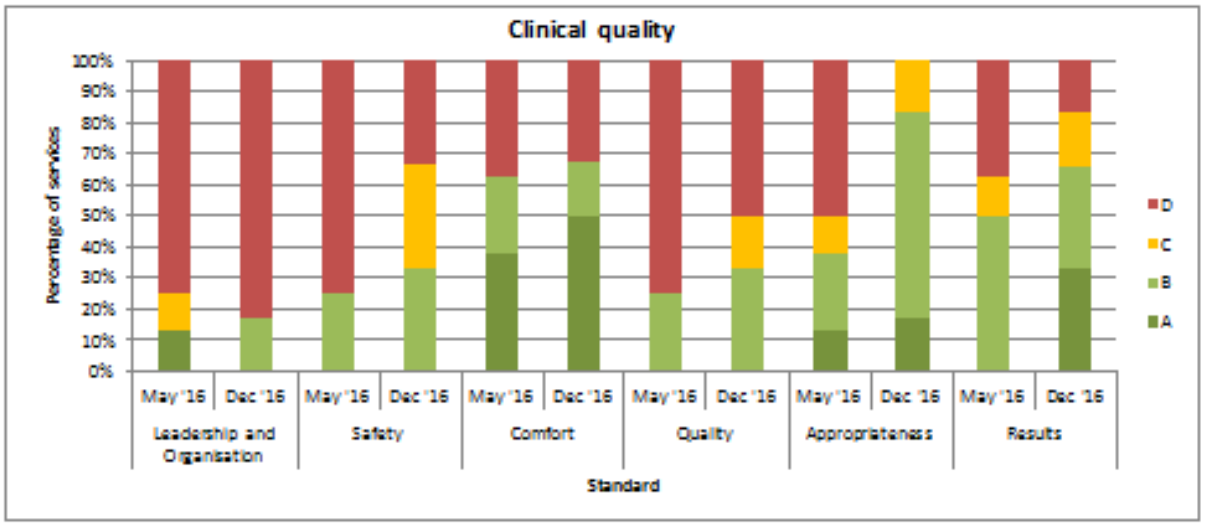
Table 1. P-GRS Domains and Standards[7]

Clinical Quality	Quality of Patient Experience
1. Leadership and Organisation 2. Safety 3. Comfort 4. Quality 5. Appropriateness 6. Results	7. Respect and Dignity 8. Consent process including patient information 9. Patient environment and equipment 10. Access and Booking 11. Planning and productivity 12. Aftercare 13. Patient involvement
Workforce	Training
14. Teamwork 15. Workforce delivery 16. Professional development	17. Environment, training, opportunity and resources 18. Trainer allocation and skills 19. Assessment and appraisal

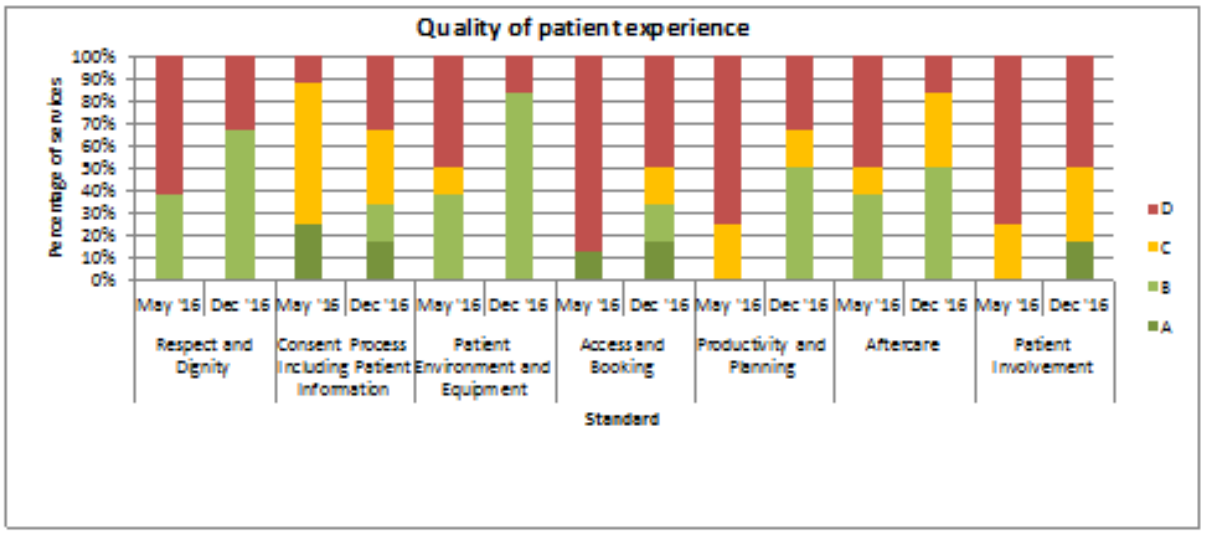
Figure 1. Results of the census return for P-GRS in May and December 2016. A(i) Clinical Quality Domain – Results from the May 2016 census. A(ii) Clinical Quality Domain – Results from the December 2016 census. B(i) Quality of Patient Experience Domain - Results from the May 2016 census. B(ii) Quality of Patient Experience Domain - Results from the December 2016 census. C(i) Workforce Domain- Results from the May 2016 census

C(ii) Workforce Domain - Results from the December 2016 census. D(i) Training Domain- Results from the May 2016 census. D(ii) Training Domain- Results from the December 2016 census.

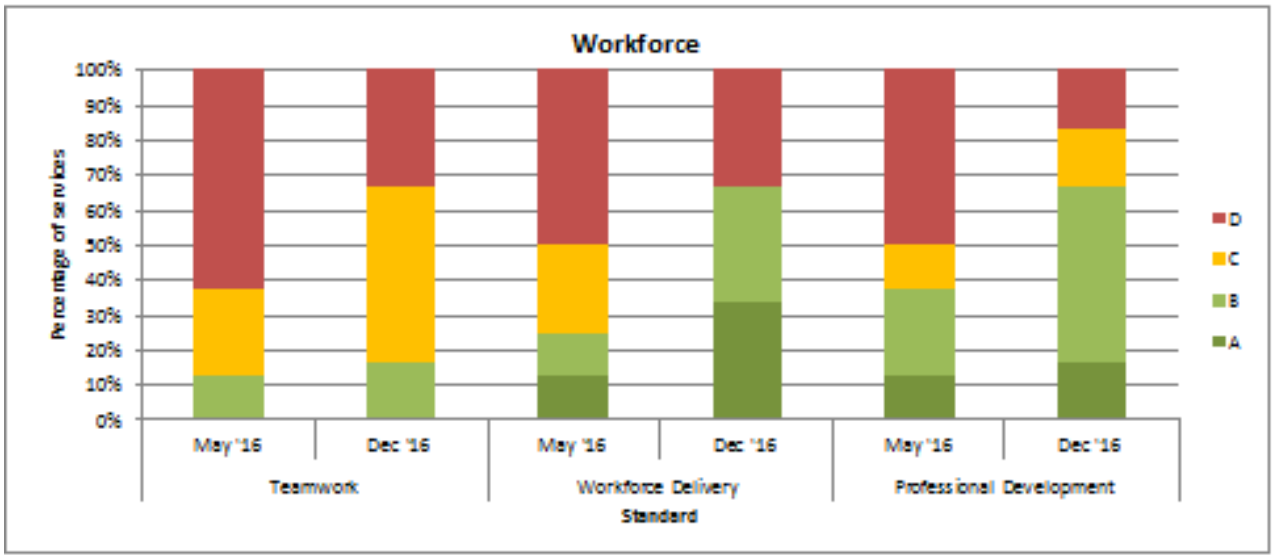
A. Clinical Quality Domain



B. Quality of Patient Experience Domain -



C. Workforce Domain



D. Training Domain